

**Multi***Mobile*<sup>™</sup>

**Models MT3410ZLX  
and MT3410ZLX-T/2  
Owner's Manual**

**MultiTech**<sup>®</sup>  
Systems 

**Owner's Manual**  
**MultiMobile™**  
**Model # MT3410ZLX & MT3410ZLX-T/2**  
**P/N 82065001**

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## Chapter 1 - Introduction and Description

### About This Manual

This manual explains how to install and use your MT3410ZLX PCMCIA Ethernet/Fax/Modem card.

### About This Product

The MT3410ZLX is a multifunction communication device that lets you perform multiple communication tasks at the same time:

- transmit and receive data at up to 33,600 bps,
- send and receive faxes from computers or fax machines, and
- connect to an Ethernet 10BaseT LAN

And it uses only one PCMCIA slot while performing these functions.

The MT3410ZLX is a credit-card-size Type II PCMCIA card that complies with the PCMCIA 2.1 and JEIDA 4.1 standards and works with computers that incorporate a compatible interface.

It is Bell, ITU-T and AT command compatible, allowing it to be used worldwide with today's popular communication software programs. You can send and receive faxes with any Group 3 fax machine. Using standard phone lines and 10BaseT Ethernet, the data communication functions of the MT3410ZLX permits you access the servers on a LAN and connect to the Internet, transmit E-Mail, send and receive information and communicate with other PCs, Bulletin Board Services (BBS) or on-line computer networks such as CompuServe and America On line

## Specifications

### PC Card Interface

PCMCIA Type II

### Dimensions

3.37" X 2.128" X 0.197"

(85.6 mm X 54 mm X 5 mm)

### Weight

1.225 oz. (35 g)

### Power

+5V  $\pm$ 5%, @220mA

### Power Consumption

Sleep Mode: 400mW (80 mA)

Operating Mode: 750mW (150 mA)

### Cable and Connector

Model MT3410ZLX:

one cable with a 15-pin detachable connector (to PC card) terminated on one end; with the other end of the cable splitting into one RJ-11 plug for PSTN connection and one RJ-45 plug for LAN connection.

Model MT3410ZLX-T/2:

one cable with a 15-pin detachable terminated connector (to PC card); with the other end of the cable terminated with one RJ-11 receptacle connector for PSTN and one receptacle connector converting 10Base-T to 10Base2 BNC T- for LAN.

### Network

IEEE 802.3 10BaseT (MT3410ZLX),  
10Base2(MT3410ZLX-T/2)--10M bps  
NE2000 compatible



### **Modem Characteristics**

V.34bis 33600bps, V.34 28800bps, V.32bis 14400bps

V.42 bis & MNP 2-5 data compression and error correction, AT Command Set

Enhanced Throughput Cellular (ETC) protocol for mobile cellular connections

### **Fax**

Group 3, V.17 14400bps and V.29 9600bps

Fax Service Class 1 and Class 2 compliant

### **Features**

- Compatible with most notebook, laptop and portable computers
- Compatible with Card and Socket Services
- Easy to install and use
- Card is hot swappable
- Supports popular Network OSs (e.g., LANtastic, NetWare, LAN Manager, Windows 3.x, Windows for Workgroups, Windows NT, and Windows 95)
- Supports popular Fax/Modem communication programs
- Multifunction capability provides concurrent LAN and Modem operation
- Multifunction CIS
- NE2000 compatible
- Concurrent, Low Power, and Sleep modes
- Auto-Sync protocol support
- POST and Loopback Tests
- Pulse/Tone and Adaptive Dialing

## System Requirements

- An IBM compatible PC or notebook computer with 386SX or faster processor
- At least one type II PCMCIA socket
- PCMCIA release 2.1 compliant Card Services and Socket Services
- Drivers and utilities (provided with this product)
- an RJ11 jack for connecting to a phone receptacle
- an RJ45 jack for 10BaseT connection to your Ethernet LAN (MT3410ZLX)
- an BNC T-connector for 10Base2 connection to your Ethernet LAN (MT3410ZLX-T/2)
- Driver software loaded on your PC
- Data and/or Fax communications software

## Ship Kit Contents

Your MT3410ZLX is shipped from the factory with the following:

- an **MT3410ZLX** PCMCIA LAN/Fax/Modem Card
- one cable with a 15-pin detachable connector (to PC card) terminated on one end; with the other end of the cable splitting into one RJ-11 plug for PSTN connection and one RJ-45 plug for LAN connection.
- one 3-1/2" Software Drivers diskette
- User's Manual (this manual)
- Fax/Modem communications software disk

Your MT3410ZLX-T/2 is shipped from the factory with the following:

- an **MT3410ZLX-T/2** PCMCIA LAN/Fax/Modem Card
- Phone cord with RJ-11 plug

- one 3-1/2" Software Drivers diskette
- User's Manual (this manual)
- Fax/Modem communications software disk
- one cable with a 15-pin detachable terminated connector (to PC card); with the other end of the cable terminated with one RJ-11 receptacle connector for PSTN and one receptacle connector converting 10Base-T to 10Base2 BNC T- for LAN.

## Chapter 2 - Installation

### Safety Warnings

1. Never install telephone wiring during a lightning storm.
2. Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations.
3. This product is to be used with *UL* and *CUL* listed computers.
4. Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.
5. Use caution when installing or modifying telephone lines.
6. Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electrical shock from lightning.
7. Do not use the telephone to report a gas leak in the vicinity of the leak.

## Installing The MT3410ZLX or MT3410ZLX-T/2 Card(s)

1. Insert the MT3410xx into the computer's PCMCIA slot with the 68-pin connector facing the PCMCIA slot and the label facing up and slide the card into the slot.
2. Plug the 15 pin connector into the 15 pin socket of the PC card. On the other end of the 15-pin cable, leave both RJ-11 telephone and RJ-45 network cables exposed until PSTN and LAN connections are made; hardware installation is now complete. The **MT3410ZLX** is powered directly from the PC.
- 2a. Plug the 15 pin connector into the 15 pin socket of the PC card. On the other end of the 15-pin cable, leave both RJ-11 telephone cable and BNC T-cable receptacles exposed until PSTN and LAN connections are made; hardware installation is now complete. The **MT3410ZLX-T/2** is powered directly from the PC.
3. Connect the MT3410ZLX to the network (LAN) using the RJ-45 (8-pin) plug.
- 3a. Connect the MT3410ZLX-**T/2** to the network (LAN) using a "thin coax" cable. Align the notches of the cable to that of the BNC T-connector, and twist clock wise approximately one-quarter turn.
4. Connect the MT3410ZLX to the telephone system using the RJ-11 (6-pin) plug into an available PSTN connection.
- 4a. Connect the MT3410ZLX-**T/2** to the telephone system by plugging an RJ-11 into the cables's RJ11 receptacle (6-pin), and with the other end of that RJ11 into an available PSTN receptacle.

## Driver Software Installation

1. Insert the Driver diskette into the floppy drive and set the current drive to the floppy drive.
2. Run **INSTALL** to install the drivers (such as ODI or NDIS 2.x or Packet Drivers) onto the target disk. The NOS selection screen is displayed:



Figure 2-1. NOS Selection Screen

## Novell NetWare Installation

There are two methods to install the MT3410ZLX under NetWare: Menu Installation and Novell Client Installation (for NetWare versions 3.12 and 4.x).

### Menu Installation

1. Run **INSTALL.EXE** from Driver diskette's root directory.
2. Select the **NetWare 3.x and 4.x Workstation** item from the Installation menu.
3. If the current settings are acceptable, select **Start Installation** and go to step 5. Otherwise, select **Modify Parameters** to make setting changes.

4. Move the cursor to highlight the settings you want to change and press **Enter** to select an appropriate value. When the configurations are set completely, press **Enter** on the **OK** field to exit the screen. The Installation program copies related files from the Drivers diskette to the destination directory and modifies the **AUTOEXEC.BAT** and **NET.CFG** files as specified. The installation is complete.
5. Reboot the computer to make the NetWare connections. The Driver Install screen is displayed:

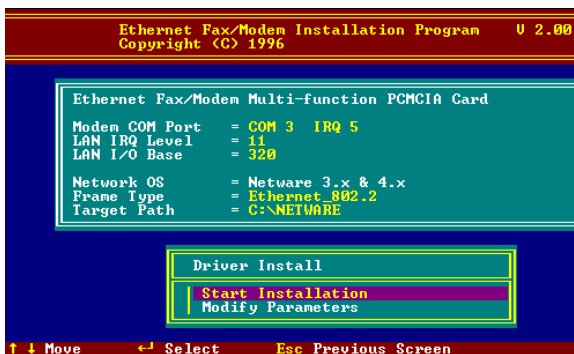


Figure 2-2. Driver Installation Screen

## Manual Driver Installation

If you wanted to install the ODI driver manually, perform the following instructions:

1. Copy the files LM28ODI.COM and NET.CFG from the directory \NETWARE and the file CARDEN.EXE and LMVXD.386 from the directory \ENABLER on the Driver diskette.

2. Use a text editor to edit the NET.CFG file for setting the Frame Type. On the NetWare server, the Frame Type default is 802.3 for NetWare 3.11, and 802.2 for NetWare 3.12 and 4.x. The Frame Type set in NET.CFG must match Frame Type set at the NetWare server, or the client will not attach to the server.
3. Follow Novell's instructions on using ODI programs. You can substitute the LM28ODI.COM whenever a reference is made to the Hardware Specific Module.
4. A typical ODI workstation startup batch file includes:

```
>CARDEN /IOP=nnn /IRQ=nnn /COM=n /  
MIR=n
```

```
>LSL ;Link Support Layer Module  
provided by Novell
```

```
>LM28ODI ;Hardware Specific Module
```

```
>IPXODI ;IPX Protocol Stack Module  
provided by Novell
```

```
>NETx ;Shell Support Module provided by  
Novell
```

```
>LOGIN
```



## Novell Client Installation

1. Run the NetWare Client Install V1.21 software. Either:
  - a. get the four Client disks from the network administrator,
  - or
  - b. run the \NWCLIENT\INSTALL.EXE used in a previous Installation.

A message appears on the screen asking if you want the program to perform modifications on your **AUTOEXEC.BAT** and **CONFIG.SYS** files.

2. Answer **Yes**.  
The program then modifies your AUTOEXEC.BAT and CONFIG.SYS files accordingly and creates backup copies. The following message appears: *“Install support for MS Windows? (Y/N): ”*.
3. Answer accordingly and provide a path if necessary. The program displays the following:  
*Configure your workstation for backup by a NetWare server running software such as BACKUP? (Y/N): No*
4. Answer accordingly and provide a path if necessary.
5. Select a driver for your MT3410ZLX.
6. From the driver list, select **Other Drivers**.
7. Go to the Insert the Driver Disk dialog box and specify the path where the ODI driver and INS files reside. For example: C:\ODI.DOS.
8. Press Enter and select the target ODI driver.
9. Specify the driver's optional settings.

10. Press F10 to save to new configuration.
11. Highlight **Install press here** and press <Enter> to install. The program copies the necessary files for NetWare Client.
12. Continue the installation procedure to completion. On completion, a new NET.CFG file is created in your DOS directory. Typically, this file contains the following lines:

```
Link Driver LM28ODI
FRAME Ethernet_802.3
#FRAME Ethernet_802.2
```

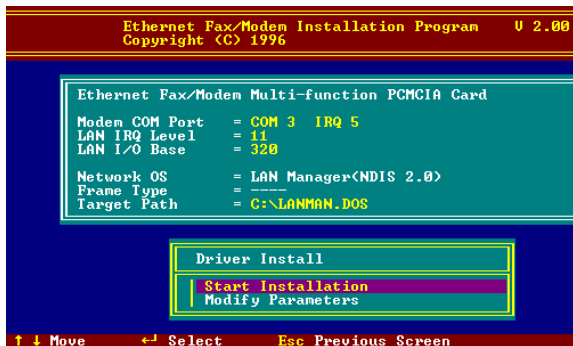
13. Copy the file CARDEN.EXE and LMVXD.386 from the directory \ENABLER on the Driver diskette to the NetWare Client directory.
14. Use a text editor to edit the STARTNET.BAT for adding a running CARDEN command at the beginning of the file. A sample STARTNET.BAT for the ODI workstation is shown next:

```
CARDEN      /IOP=nnn /IRQ=n /COM=n /MIR=n
             SET NWLANGUAGE=ENGLISH
             --(sets NetWare 4.X to English
             language)
LSL          --Link Support Layer Module
             provided by Novell
LM28ODI     --Hardware Specific Module
IPXODI      --IPX Protocol Stack Module
             provided by Novell
VLM         --DOS Support Module provided
             by Novell
F:          --Change to connected device
LOGIN .ADMIN --Login to file server as user
             ADMIN
```

15. Run STARTNET to access the Novell network.

## Microsoft LAN Manager Installation

1. View the README.TXT on the installation diskette in the \NDIS2 directory. Before installing the drivers, ensure that the Microsoft LAN Manager has been installed in the target path. The installation program will check and modify the PROTOCOL.INI file for LAN Manager.
2. Run **INSTALL.EXE** from root directory of driver diskette.
3. Select the **Microsoft LAN Manager** item on the menu screen.
4. If the current settings are acceptable, select **Start Installation** and go to step 6. Otherwise, select **Modify Parameters** to make setting changed.
5. Move the cursor to each field you want to change and press **Enter** to select a new value. When the selections are set completely, press **Enter** on the **OK** field to exit the screen and go back to step 4.
6. The Installation program copies related files from the Drivers diskette to the destination directory and modifies the CONFIG.SYS and PROTOCOL.INI files as specified.
7. Reboot the computer to load the selected Driver.
8. Highlight "Start Installation" and press **Enter** to start the LAN Manager in batch mode.



**Figure 2-3. Microsoft LAN Manager Installation Screen**

A sample LAN Manager PROTOCOL.INI file:

```
[PROTMAN]
DRIVERNAME = PROTMAN$
DYNAMIC = YES
PRIORITY = NETBEUI
[NETBEUI_XIF]
Drivername = netbeui$
SESSIONS = 6
NCBS = 12
BINDINGS = "LM28NDS2_NIF"
LANABASE = 0
[LM28NDS2_NIF]
; protocol.ini session for multifunction
  LAN/MODEM driver.
IOADDRESS = 0x320
INTERRUPT = 11
DRIVERNAME = LM28NDS$
```

## Packet Driver Installation

1. Run INSTALL.EXE from the root directory of the Drivers diskette.
2. Select the **Packet Driver** item on the Menu screen.
3. If the current settings are acceptable, select **Start Installation** and go to step 4. Otherwise, select **Modify Parameters** to make setting changed.
4. Move the cursor to the field you want to change and press **Enter** to select a new value. When the configuration is set completely, press **Enter** on the **OK** field to exit the screen and go back to step 3. The Installation program copies related files from the Drivers diskette to the destination directory and modifies the AUTOEXEC.BAT file as defined.
5. Reboot the computer to load the selected driver.

## Windows for Workgroups Installation (NDIS3 Driver for Workgroup)

1. Run Windows for Workgroups and click the **Network Setup** icon in the **Network** group.
2. In **Network Settings** dialog box, click **Networks...** button to select the network operating system.
3. In **Networks dialog** box, check the radio button before **Install Microsoft Windows Network** and **No Additional Network**. Press **OK** to go back the **Network Settings** screen.
4. Click the **Drivers...** button to select network driver.

5. In the **Network Drivers** dialog box, press **Add Adapter...** button to enter **Add Network Adapter** dialog box. Select **Unlisted or Updated Network Adapter** and press **OK**. Windows will prompt a **Install Driver** dialog box.
6. Place the Drivers diskette into the floppy drive and press **OK**.
7. Select the **Enhanced mode NDIS3 for....** string and press **OK**.
8. Follow Windows instructions to complete the installation and exit Windows
9. Select **Windows for Workgroup** in the Network Operating System screen.
10. If the current settings are acceptable, select **Start Installation** and go to step 13. Otherwise, select **Modify Parameters** to make settings changed.
11. Move the cursor to the setting you want to change and press **Enter** to select a new value. When the configuration is accepted, press **Enter** on the **OK** field to exit the screen and go back to step 10.
12. Select **NDIS Server (LAN Manager,...)** as the network server that you will attach to and press the **Enter** key. The Installation program copies the related files to the destination directory and modifies the AUTOEXEC.BAT and PROTOCOL.INI files as specified.
13. Reboot the computer to have the selected driver take effect.

## NDIS2 Driver for Workgroup

1. Run Windows for Workgroups and click the **Network Setup** icon in the **Network** group.
2. In the **Network Settings** dialog box, click the **Networks...** button to select the network operating system.
3. In the **Networks** dialog box, check the radio button before **Install Microsoft Windows Network** and **No Additional Network**. Press **OK** to go back the **Network Settings** screen.
4. Click the **Drivers...** button to select network driver.
5. In the **Network Drivers** dialog box, press the **Add Adapter...** button to enter the **Add Network Adapter** dialog box. Select **Unlisted or Updated Network Adapter** and press **OK**. Windows displays a **Install Driver** dialog box.
6. Place the Drivers diskette in the floppy drive and press **OK**.
7. Select the **Real mode NDIS2 for...** string and press **OK**.
8. Follow the Windows instructions to complete the installation, then exit Windows.
9. Run INSTALL.EXE from root directory of the Drivers diskette.
10. Select **Windows for Workgroup** in Network Operating System screen.
11. If the current settings are acceptable, select **Start Installation** and go to step 13. Otherwise, select **Modify Parameters** to change settings.

12. Move the cursor to the setting(s) you want to change and press **Enter** to select a new value. When the configuration is set completely, press **Enter** on the **OK** field to exit the screen and go back to step 11.
13. Select **NDIS Server (LAN Manager,...)** as the network server to which you will attach and press the **Enter** key. The Installation program copies the related files to the destination directory and modifies the AUTOEXEC.BAT file as specified.
14. Reboot the computer to have the selected driver take effect.

### ODI Driver for Workgroups

1. Run Windows for workgroups and click **Network Setup** icon in **Network** group.
2. In the **Network Settings** dialog box, click the **Networks...** button to select the network operating system.
3. In the **Networks** dialog box, check the radio button before **Install Microsoft Windows Network and Others:**. Select **Netware Shell, 3.X or 4.0 and above**, and press **OK** to go back the **Network Settings** screen.
4. Click on the **Drivers...** button to select network driver.
5. In the **Network Drivers** dialog box, press the **Add Adapter...** button to enter the **Add Network Adapter** dialog box. Select **Unlisted or Updated Network Adapter** and press **OK**. Windows will prompt a **Install Driver** dialog box.



6. Place the driver diskette in the floppy drive and press **OK**.
7. Select the **Netware ODI Driver ...** string and press **OK**.
8. Follow the on-screen Windows' instructions to complete the installation, then exit Windows.
9. Run INSTALL.EXE from the root directory of the Drivers diskette.
10. Select **Windows for Workgroup** on the Network Operating System screen.
11. If the current settings are acceptable, select **Start Installation** and go to step 13. Otherwise, select **Modify Parameters** to make settings changed.
12. Move the cursor to the setting you want to change and press **Enter** to select a new value. When the configuration is set completely, press **Enter** on the **OK** field to exit the screen.
13. Select **Novell Netware Server** as the network server to which you will attach and press the **Enter** key. The Installation program copies related files to the destination directory and modifies the AUTOEXEC.BAT and NET.CFG files under user's agreement.
14. Reboot the computer to have the selected driver take effect.

## Windows NT 3.51 / NT 4.0 Installation

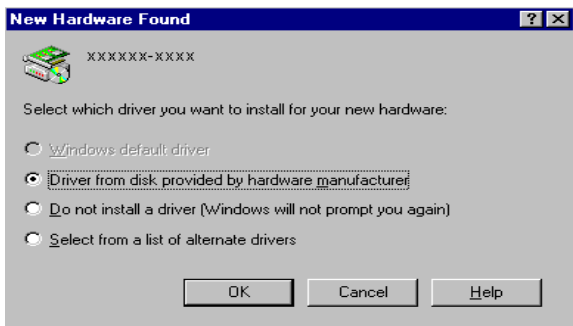
1. Install the PCMCIA support for your particular make and model of laptop from the Service Packs.

Note that: These must be verified to be working properly before continuing, and Support for this level of driver is from the laptop manufacturer only.

2. From the **Main** window, select **Control Panel**.
3. In the Control Panel, select **Network Icon**.
4. In Network Setup, select **Add Adapter**.  
Windows NT will display a list of all available drivers.
5. Select **OTHERS** for third-party adapters not included in the list. The program prompts for the directory containing the Ethernet drivers.
6. Insert the Driver disk in the floppy (e.g., A) drive and type **A:\**. Windows NT tries to locate the OEMSETNT.INF file in the specified path. If it exists there, Windows NT will then copy the appropriate drivers to the Windows NT system. The drivers are now properly installed. Proceed to the next steps, and refer to your Windows NT installation guide for information on these steps.
7. Windows NT pops up a window to ask the values of some keywords (e.g., **IO Port**, **IRQ Number**, and **Memory Base**). After initial installation, the drivers are permanently installed to the Windows NT system. Subsequent access of the Network Drivers list will include these drivers as options.

## Windows 95 Installation

1. We assume that the PCMCIA Chipset drivers are loaded and functioning. The System Icon in the control panel can report on its functionality. Any questions on this layer must be taken up with the computer's manufacturer.
2. Insert the MT3410ZLX into PCMCIA slot. Windows 95 will prompt **New Hardware Found** dialog box (shown below).
3. In **New Hardware Found** dialog box, select **Driver from disk provided by hardware manufacturer**.



**Figure 2-4. Windows 95 Driver Installation Screen**

3. Type the full path (e.g., "A:\") and insert the Installation disk. The driver will install and it may ask for the installation CD/disks. After installation it will reboot the computer, and the MT3410ZLX will be fully functional.

4. For a first-time MT3410ZLX installation, click **Network** icon in **Control Panel** of the Main Group to add the desired Protocols, Client and Service.
5. Reboot the computer; the card is now fully functional.

### Artisoft Lantastic 6.0 Installation

1. Install LANTASTIC 6.0 first.
2. Run INSTALL.EXE from Driver diskette's root directory.
3. Select **LANTASTIC 6.0** on the Network Operating System screen and enter the Driver Install screen.
4. If the current settings are acceptable, select **Start Installation** and go to step 6. Otherwise, select **Modify Parameters** to change settings.
5. Move the cursor to highlight each field you want to change, and press **Enter** to select a new value. Then press **Enter** on the **OK** field to go back to step 4.
6. The Installation program copies related files from the Drivers diskette to the destination directory, and modifies the CONFIG.SYS, PROTOCOL.INI, and STARTNET.BAT files automatically. Driver installation is complete.
7. Reboot the computer to have the selected driver take effect.

## Chapter 3 - Comprehensive Driver Notes

### Introduction

This chapter provides general information on the MT3410ZLX software drivers, as well as specific information on the NDIS, Packet Driver, and Windows for Workgroups drivers.

### Factory Default Settings

The MT3410ZLX was shipped from the factory with the following default settings:

Modem COM Port	COM3 , IRQ5
LAN IRQ	Level 11
LAN I/O Base Addr.	320
Network OS	Netware 3.x and 4.x
Frame Type	Ethernet 802.2
Target Path	C:\NETWARE

### Quick Start

For a quick start, simply run INSTALL.EXE, located at the root directory on the Driver diskette.

### PC Card Software - Manual Installation

The installation software has been carefully designed to detect a combination of hardware and software installed on the PC. Proper detection allows the PC's PC Card drivers to enable the MT3410ZLX. If the installation software fails, the enabler must be manually copied from the driver disk to the PC. If you are using Windows for Workgroup 3.11, Windows NT, or Windows 95, follow the instructions for installing PC Cards in your PC's manual.

Determine if any third party generic enablers installed on the PC. These are identified by a search through the CONFIG.SYS file for the following lines:

<u>Vendor</u>	<u>Device Loaded in CONFIG.SYS</u>
---------------	------------------------------------

Awards Software	DEVICE=C:\CARDWARE\PCENABLE.EXE
-----------------	---------------------------------

System Soft	DEVICE=C:\CARDSOFT\CARDID.EXE
-------------	-------------------------------

Phoenix	DEVICE=C:\PCPLUS\PCMSCD.EXE
---------	-----------------------------

If one of these lines exists in your CONFIG.SYS, it can be used to enable the MT3410ZLX PC Card. Follow the PCMCIA driver installation instructions in the PC's manual. If the PC Card drivers do not support multi-function cards, use the Multi-Tech supplied enabler.

Disable all current PC Card drivers by editing the CONFIG.SYS and AUTOEXEC.BAT. If it is necessary to keep these drivers for other adapters, skip to next section.

1. Insert the Drivers disk in drive A:.
2. Type C: at the command prompt.
3. Type MD LMCARD to make a new directory.
4. Type COPY A:\ENABLER\\*. \* C:\LMCARD to copy the enabler to your directory.
5. Modify the PATH= statement in your AUTOEXEC.BAT to include the path C:\LMCARD.
6. Change from PATH=<Original Path> to PATH=<Original Path>;C:\LMCARD
7. Use CARDEN.EXE to enable MT3410ZLX when the PC is loading Card Services.

## Getting Started

For Novell, Lan Manager, and Packet Driver, first insert the MT3410ZLX PC Card into an open PCMCIA card slot, and remove all other PC Cards from your computer. Insert the MT3410ZLX driver disk into Drive A and type `A:\INSTALL` at the command prompt. The installation program will copy files to the destination directory and modify your related files (`CONFIG.SYS`, `AUTOEXEC.BAT`, and `NET.CFG`).

For Windows for Workgroup, Windows NT and Windows 95, use the *"Network Setup"* utility provided by Windows system to install the MT3410ZLX. On this disk you will find sub-directories for each of the Microsoft products. Each directory has a `README.TXT` that will help install that particular Microsoft product.

After installation, reboot your computer to enable the MT3410ZLX.

## Using DOS Extended Memory Managers

Under PCMCIA, all I/O cards (including Ethernet and Modems) must be initialized as memory cards and then switched into I/O mode operation by an enabler software.

Therefore, the enabler software (e.g., `CARDEN.EXE`) must see the PC Card memory when it is executed. DOS extended memory managers such as `EMM386` and `QEMM` take control of the PC memory space which effects PC Card initialization.

There are two available solutions:

- 1) Run enabler (CARDEN or existing PC Card drivers + CARDEN) before EMM386 or QEMM is loaded,  
or
- 2) Exclude at least 4K of memory from EMM386's or QEMM's use. An exclusion of X=D000-D3FF will work well. There may also be additional exclusions for your PCMCIA drivers; don't modify these.

### Driver Directory Structure

The network drivers on this disk is organized in the following structure. Each directory contains a README.TXT file which provides detailed installation instructions for the drivers in that directory:

CARDEN.EXE	Direct PCMCIA Card Enabler for DOS; supports MT3410ZLX and Intel compatible, Compaq and Databook controllers.
LM28ODI.COM	MT3410ZLX DOS/ODI Driver working with direct enabler (LAN & MODEM run concurrently). Supports Intel compatible, Compaq and Databook controllers.
LM28NDS.DOS	MT3410ZLX DOS real mode NDIS Driver.
LM28PD.COM	MT3410ZLX DOS real mode Packet Driver.
LM28NDS.386	MT3410ZLX Enhanced Mode NDIS Driver for Windows for Workgroups.
LM28NDS.SYS	MT3410ZLX Enhanced Mode NDIS Driver for Windows 95.



LM28NDS.SYS MT3410ZLX Enhanced Mode  
NDIS Driver for Windows NT.

## Driver Upgrades

We are continuously improving and upgrading our drivers. You are welcome to browse through our BBS, and download any drivers, utilities and help files at any time.

If using the downloaded drivers does not get the MT3410ZLX working properly, our technical experts are always ready to help. Please be at your computer, have your MT3410ZLX, Driver Disk, and the following information available:

- Version number of CARDEN.EXE and any drivers you are running,
- the exact text of any error message displayed on your screen,
- the type of computer you are using, and
- the type of network to which you're computer is connected.

Refer to Chapter 5 of this manual for information on contacting Tech Support.

## Notes for NDIS Driver

The following are examples of partial CONFIG.SYS and AUTOEXEC.BAT files for loading System Soft's Card Services and NDIS2 driver:

Example of partial CONFIG.SYS file:

```
device=c:\cardsoft \ss365sl.exe
device=c:\cardsoft \cs.exe
device=c:\cardsoft \csalloc.exe c:\cardsoft\csalloc.ini
device=c:\lanman.dos\drivers\ethernet\lm28\carden.exe
        /iop=nnn /irq=n /com=n /mir=n
device=c:\cardsoft \cardid.exe
device=c:\lanman.dos\deivers\protman.dos/i:c:\lanman.dos
device=c:\lanman.dos\drivers\ethernet\lm28\lm28nds.dos
```

Example of partial AUTOEXEC.BAT file:

```
set path= c:\lanman.dos\netprog;%path%
net start workstation
load netbeui
```

The Ethernet function configuration information for the DOS NDIS driver is contained in the PROTOCOL.INI file. To make allowances for passing the requested modem COM port (COM1, 2, 3, or 4) to the driver, there has been another field added. The section of the PROTOCOL.INI file that contains configuration information for this card must begin with **[LM28NDS2\_NIF]**.

The valid PROTOCOL.INI file entries are listed below:

[LM28NDS2\_NIF]

DRIVERNAME - LM28NDS\$

(This line must always be present.)

IOADDRESS - value

where value is one of the following

addresses: 0x300, 0x320, 0x340, 0x360.

(The leading **0x** for the hex notation is required.)

(To have Card Services select the address base from it's pool of available addresses, use a value of 0.)

INTERRUPT - value

where values is one of the following

interrupts: 3, 4, 5, 7, 9, 10, 11, 12, 15.

(To have Card Services select an available interrupt resource, place a value of 0 at this location.)

## Notes for Packet Driver

The following is an example of a partial CONFIG.SYS file for loading System Soft's Card Services and Packet Driver:

```
device=c:\cardsoft\ss365sl.exe
```

```
device=c:\cardsoft\cs.exe
```

```
device=c:\cardsoft\csalloc.exe c:\cardsoft\csalloc.ini
```

```
device=c:\tcpip\carden.exe /iop=nnn /irq=n /com=n /mir=n
```

```
device=c:\cardsoft\cardid.exe
```

```
device=c:\tcpip\lm28pd.com
```

## Notes for Windows For Workgroups

After installation of the MT3410ZLX drivers, the system will automatically update the CONFIG.SYS and AUTOEXEC.BAT files so that the driver will be loaded at system startup. When modifying the two files, the system will make a dual copy named CONFIG.ABO and AUTOEXEC.ABO in the system's directory. If the MT3410ZLX driver is not successfully loaded, replace the two \*.ABO file for a related file and try to start the system again.

The following are examples of partial CONFIG.SYS file and AUTOEXEC.BAT for loading System Soft's Card Services and drivers for Windows for Workgroups:

Example of partial CONFIG.SYS file:

```
device=c:\cardsoft\ss365sl.exe
device=c:\cardsoft\cs.exe
device=c:\cardsoft\csalloc.exe c:\cardsoft\csalloc.ini
device=c:\wfw311\carden.exe /iop=nnn /irq=n /com=n
        /mir=n
device=c:\cardsoft\cardid.exe
device=c:\wfw311\ifshlp.sys
```

Example of a partial AUTOEXEC.BAT file:

```
C:\WFW311\NETSTART
```

## Chapter 4 - Troubleshooting

### Introduction

This chapter provides general and specific problem solving steps. Below are a number of examples of Problems (in bold text:), Causes (**C:**), and Solutions (**S:**). If your MT3410ZLX is not working properly, look up the problem and solution here; if unsuccessful, call Tech Support (see Chapter 5). At the end of this chapter is some specific steps for resolving IRQ and COM port conflicts.

### No Response to AT Commands

- C:** The COMx port that the modem is set to may be used by another card in the computer already.
- S:** Change the COMx port of MT3410ZLX to a different unused port. It might be best to set it to COM3 or COM4. Even if you are not using a serial port which is set to the same COMx port as the modem, it can still interfere with the modem. Be sure to update your software COMx port setting as well.
- C:** The Interrupt that the modem is using may be the same Interrupt that another card is using.
- S:** Change the IRQ settings to a different, unused, IRQ. Even if you are not using a serial port which is set to the same IRQ as the modem, it can still interfere with the modem.

### **The Modem Does Not Execute the Command Line**

- C:** Make sure you are typing '**AT**' at the beginning of command line (and hit Enter at the end).
- C:** Make sure the modem is not in Data Mode. Type **+++** if necessary.
- C:** Make sure your software is set to the same COMx port as your MT3410ZLX.

### **The Modem Does Not Give a Response After an AT Command Was Executed**

- C:** The echo and/or responses may be turned off by the **ATE0Q1** commands. Enable the **AT&V1** to check Result Codes.
- S:** Use **ATE1Q0** then Enter to change them back.
- C:** Make sure the modem is in Command Mode and not Data Mode when you type the AT command.

### **The Modem Gives an 'ERROR' Response After an AT Command was Executed**

- C:** Make sure you did not type an invalid command.
- C:** Make sure your command line is 40 characters or less.

### **The Modem Goes Off-Hook and Disables the Telephone Line.**

- C:** The modem may be set to auto-answer the phone when it rings.
- S:** Disable auto-answer by typing **ATS0=0** then Enter at the command line.

### **The Modem Does Not Auto-Answer the Phone**

- C:** If necessary, make sure the software is configured to auto-answer the phone.
- A:** To set auto-answer mode on from AT command mode, type **ATS0=*n*** then press Enter. The ***n*** stands for which number of rings the modem answers. For example: **ATS0=3** causes the modem to answer on the third ring.

### **The Software Does Not Control the Modem Properly or Can Not Detect the Modem**

- S:** Make sure the software has been set up correctly. Check the initialization string and dial string.
- C:** Some TSRs (programs that stay in memory after they are loaded) may conflict with the communications software.
- S:** Try starting your computer without loading any TSRs.

### **The Characters on the Screen Are Doubled**

- C:** Both the modem and the software have the echo feature turned on.
- S:** Since only one needs an echo, turn the software echo feature off.
- C:** The remote modem is echoing your typed characters.
- S:** Type **ATE1** then Enter at the command line. Then turn off the software echo feature.

### **No Text Appears on the Screen in Data Mode**

- C:** The remote modem is not echoing your typed characters.
- S:** Type **ATE0** then press Enter at the command line. Then turn the software echo feature on.
- C:** Your software may not be set to use Full Duplex or the remote modem may not be set to use Full Duplex either.
- C:** The remote modem may be waiting for you to type a command before it will reply with text.

### **No Text Appears on the Screen When in Command Mode**

- S:** If you can't see the characters you are typing, then type **ATE1** then press Enter.

### **The Modem Does Not Dial a Phone Number After Execution of AT Dial Command**

- C:** If you are using touch tone dialing on a phone line that requires pulse dialing, then it may not work.
- S:** Use **ATDT** in place of **ATDP**.

### **Communications Software Dials, but Fails**

- C:** Make sure the software dialing prefix is **ATDT**.
- C:** Make sure the software and modem are set to the same COMx port.
- C:** The modem may not have hung up the phone line since the last call.
- S:** Change to Command mode and type **ATH** then press Enter.



**The Modem Connects with Some Modems, but Not Others**

- C:** The remote modem may not support data compression or error correction, which might cause it to take too long to negotiate a link.
- S:** You might try changing the way the modem negotiates by using the ***AT&Qn***, ***ATNn***, and ***ATS37=n*** commands. It might be best to start with ***AT&Q0N1***.

**When Dialing Another Modem, You Receive a 'CONNECT' Response, but Nothing Else**

- C:** The remote modem may be waiting for you to type a command.
- S:** Try to log on to the remote site (press Enter).
- S:** Type an AT command, then press Enter.

**The Modem Speaker Does Not Make Any Sound When Connecting to Another Modem**

- C:** The software may have the speaker disabled.
- S:** Change the setting in your software or use the ***ATMn*** command to turn the speaker on.

**The Modem Loses the Connection When in Use**

- C:** The remote modem may have locked up.
- S:** Run the Remote Digital Loopback Test (***&T4*** command).
- C:** The telephone switch may have disconnected your call.
- C:** Your software may have turned off the DTR signal.

## The Modem Does Not Connect with Another Modem

- C:** There may be a problem with the remote modem if you do not hear the high pitched tone from the remote modem.
- S:** Run the Remote Digital Loopback Test (**&T4** command).

## Occasionally, the Modem Gives a Burst of Errors.

- C:** The telephone line may be noisy or bad.
- S:** Hang up the call and try to connect again for getting a better telephone line.
- C:** If there are other telephones on the same line that your modem is using, someone may have picked up a telephone on that extension.
- C:** Your telephone line may have the call waiting feature.
- S:** Try adding **\*70** to your **ATDT** dialing command line. If it doesn't help, ask your telephone company how to temporarily disable call waiting.

## The Modem Gets Random Errors in Transmitted Data.

- S:** Try to use V.42 or MNP1-4 if possible.
- S:** Connect the modems at a slower baud rate.

### **After Downloading a File, the File Does Not Store on Your Disk Drive**

- C:** If both modems are using MNP or V.42 protocol, then flow control may not be enabled.
- S:** Configure your software to use RTS/CTS flow control to cause your computer to pause long enough for the file to be stored to disk.

### **The Text on the Screen Is Not Legible**

- C:** Your software settings may not match the settings of the remote device.
- S:** Make sure your data bits, stop bits, and parity settings match the settings that the other computer is using. The two most common settings are: 8 data bits, None parity, and 1 stop bit (8,N,1) or 7 data bits, Even parity, and 1 stop bit (7,E,1).
- C:** If the telephone line is very noisy, you may see corrupted data on your screen.
- C:** Due to poor telephone line conditions, the modem may have fallen back to a slower communication speed. You may need to change the baud rate setting in your software to match this slower speed. To return the modem to the higher speed, disconnect the link and re-establish again.

### **When Using V.42bis or MNP5, Some Features Are Disabled**

- C:** You may be using a non-streaming protocol, like Xmodem or Ymodem to transfer files. Those are fine unless you are using V.42bis or MNP5
- S:** When using V.42bis or MNP5, you should use a streaming transfer protocol like Ymodem-G or Zmodem.
- S:** Configure your software to use hardware flow control (RTS/CTS ON).

### **When Connecting to Another Modem, the Modem Reports a Higher Connect Baud Rate than it Is Really Using**

- C:** The modem defaults to report the modem-to-computer baud rate when it responds with *CONNECT*.
- S:** Go to Command mode with your communication program (like Telix) and type **ATW2**, then press Enter. This tells the modem to report the modem-to-modem baud rate instead.

### **When I Run CARDEN, "PC-Card Is Not Enabled Successfully" Is Displayed**

- C:** Your computer does not have enough memory to map the attribute memory of your MT3410ZLX.
- S:** If memory management software (e.g., EMM386) is installed, you must reserve an area in upper memory (C000:0 — EFFF:F) for MT3410ZLX attribute memory when enabling the card.

Example: *Device=C:\DOS\EMM386.EXE RAM  
X=D000-D3FF*

Reserve D000 - D3FF for attribute memory.

- C:** No free I/O space or interrupt request can be assigned to the MT3410ZLX.
- S:** The MT3410ZLX needs 32 contiguous I/O ports and one interrupt request for its LAN connection. It also need 8 contiguous I/O ports and another interrupt request for Fax/Modem. The LAN ports must be located at one of the following I/O addresses: 0x300, 0x320, 0x340, 0x360. The Fax/Modem ports must be located at one of these addresses: 0x2F8, 0x3E8, 0x3E8. (There are also compatibility issues with certain Fax/Modem software applications.) We recommend assigning the Modem Interrupt (MIR) a value less than 7 (IRQ3 to 6). Make sure that these resources are available for the MT3410ZLX.

### **Enabling The MT3410ZLX**

- S:** If the Card Service is installed, you can check by hearing the beep when card insertion.
- S:** Run `CARDEN /CHK` to check if the MT3410ZLX has been enabled. The resources allocated for the card are shown as below at the last line of the display message.

*IOP=0Xnnn IRQ=nn COM=nn MIR=nn*

## Installing The Win 95 Driver Over SystemSoft CardWorks

- S:**
1. Start Windows 95, then plug the MT3410ZLX into the PCMCIA slot. The SystemSoft Cardwizard window should appear.
  2. Select the appropriate slot number containing the MT3410ZLX.
  3. Select the **View** pull down menu
  4. Select **Properties**.
  5. Select **Drivers** in **Properties**.
  6. Select **Change Card Driver** to active the selective items above it.
  7. Select **Use Plug and Play**.
  8. Press **OK**. Win 95 will ask you to remove the card.
  9. Insert the card again.
  10. Follow the instruction to insert the diskette and type the path **A:\** for the MT3410ZLX driver.
  11. Add client and service as desired at the **Network** icon in **Control Panel**.
  12. Reboot the computer.

## The NetWare Driver Runs Successfully but Fails to Login to The NetWare Server

- C:** The client Frame type is incompatible with the server Frame type.
- S:** The default frame type for Netware 3.11 and below is 802.3 but it changed to 802.2 in Netware 4.x and 3.12. Check the content of NET.CFG to see if the Frame type is acceptable by the server. If the Frame type can not be accepted by the server, edit NET.CFG to change the Frame type at the client site, or add the Frame type which can be accepted at the server site.

## COM Port and IRQ Conflicts

If you have isolated the problem to an IRQ or COM port conflict, refer to the following sections for resolving IRQ and COM port conflicts in Windows 3.1 or Windows 95.

### Windows 3.1x

To look for COM port or IRQ conflicts in Windows 3.1x, select File | Run in Program Manager, type **MSD**, and press Enter. Then select *Mouse*, *COM Ports*, and *IRQ Status* and note the addresses and IRQs that are in use. If you find an IRQ conflict, note which IRQs are not being used, then change one of the conflicting devices to use one of the unused IRQs. If you find an address conflict, change the address of one of the conflicting devices.

To change a port address or IRQ in Windows 3.1x, double-click the *Control Panel* icon, then the *Ports* icon. Click on the port you want to change, click *Settings*, click *Advanced*, and select the new port

address and/or interrupt. If you wish to use COM3 or COM4, note that COM3 shares an IRQ with COM1, as does COM4 with COM2, so you should change their IRQs to unused ones, if possible.

### Windows 95

In Windows 95, right-click on *My Computer*, select *Properties* from the menu, click on the *Device Manager* tab, double-click on *Ports*, then double-click on the *Communications Port* your modem is connected to. In the port's *Properties* sheet, click on the *Resources* tab to see the port's Input/Output range and Interrupt Request. If another device is using the same address range or IRQ, it will appear in the *Conflicting Device List*. Uncheck "Use Automatic Settings" to change the port's settings so they do not conflict with the other device, or select the port the conflicting device is on and change it instead. If you need to open your computer to change switches or jumpers on the conflicting device, refer to the device's documentation.



## Chapter 5 - Service

This chapter begins with the terms of your modem's warranty. Read carefully the next section, Tech Support, if you have questions or problems with your modem. It includes the technical support telephone numbers and an explanation of how to send in your modem should you require service. The final sections explain how to use our bulletin board service (BBS), and get support through CompuServe, the Internet and the Multi-Tech Fax-Back System.

### Limited Warranty

Multi-Tech® Systems, Inc. ("MTS") warrants that this product will be free from defects in material or workmanship for the period specified on the enclosed Warranty Registration Card. Please complete the card and return to Multi-Tech postage pre-paid. MTS MAKES NO OTHER WARRANTY, EXPRESSED OR IMPLIED, AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED. This warranty does not apply to any products that have been damaged by lightning storms, water, or power surges, or that have been neglected, altered, abused, used for a purpose other than the one for which they were manufactured, repaired by the customer or any party without MTS's written authorization, or used in any manner inconsistent with MTS's instructions.

MTS's entire obligation under this warranty shall be limited (at MTS's option) to repair or replacement of any products that prove to be defective within the warranty period, or, at MTS's option, issuance of a refund of the purchase price. Defective products must be returned by Customer to MTS's factory transportation prepaid.

MTS WILL NOT BE LIABLE FOR CONSEQUENTIAL DAMAGES AND UNDER NO CIRCUMSTANCES WILL ITS LIABILITY EXCEED THE PURCHASE PRICE FOR DEFECTIVE PRODUCTS.

## **On-line Warranty Registration**

To register your Multi-Tech product on-line, click on the following link:

<http://www.multitech.com/support/register.htm>

## **Software User License Agreement**

The MT3410ZLX software is licensed by Multi-Tech Systems, Inc. to the original end-user purchaser of the product, hereafter referred to as "licensee". The License includes the distribution diskette, other accompanying programs, and the documentation.

The MT3410ZLX software, hereafter referred to as "software", consists of the computer program files included on the original distribution diskette.

Licensee agrees that by purchase and/or use of the Software, he hereby accepts and agrees to the terms of this License Agreement.

In consideration of mutual covenants contained herein, and other good and valuable considerations, the receipt and sufficiency of which is acknowledged, Multi-Tech Systems, Inc. does hereby grant to the Licensee a nontransferable and non-exclusive license to use the Software and accompanying documentation, on the following conditions and terms:

The Software is furnished to the Licensee for execution and use on a single computer system only and may be copied (with the inclusion of the Multi-Tech Systems, Inc. copyright notice) only for use on that computer system. The Licensee hereby agrees not to provide or otherwise make available any portion of this software in any form to any third party without the prior express written approval of Multi-Tech Systems, Inc.

Licensee is hereby informed that this software contains confidential, proprietary and valuable trade secrets developed by or licensed to Multi-Tech Systems, Inc. and agrees that sole ownership shall remain with Multi-Tech Systems, Inc.

The Software is copyrighted. Except as provided herein, the Software and documentation supplied under this agreement may not be copied, reproduced, published, licensed, sub-licensed, distributed, transferred, or made available in any form, in whole or in part, to others without expressed written permission of Multi-Tech Systems, Inc. Copies of the software may be made to replace worn or deteriorated copy for archive or emergency back-up procedures.

Licensee agrees to implement sufficient security measures to protect Multi-Tech Systems, Inc. proprietary interests and not to allow the use, copying or transfer by any means, other than in accordance with this agreement.

Licensee agrees that any breach of this agreement will be damaging to Multi-Tech Systems, Inc.

## Tech Support

Multi-Tech has an excellent staff of technical support personnel available to help you get the most out of your Multi-Tech product. If you have any questions about the operation of your Multi-Tech modem, please call 1-800-972-2439. Please fill in the modem information form (below), and have it available when you call. If your modem requires service, the technical support specialist will guide you on how to send in your modem (see "Service" section).

## Recording Modem Information

Please fill in the following information on your Multi-Tech modem. This will help Tech Support in answering your questions. (The same information is requested on the warranty registration card.)

Modem model # \_\_\_\_\_  
Modem serial# \_\_\_\_\_  
Modem firmware version # \_\_\_\_\_  
Software name \_\_\_\_\_  
Software version # \_\_\_\_\_

The modem model number and serial number are printed on a label on the bottom of your modem. The software version numbers are printed on the diskette labels. You can also find the software version numbers by selecting Help >> About... from the software menu bars. Enter the **ATI1** command to display the modem firmware version number.

Before calling Tech Support, please check your cables to ensure they are connected properly; then note the status of your modem including status indicators, screen messages, diagnostic test results, problems with a specific application, etc.

## Service

If your tech support specialist decides that service is required, you may send your modem to our factory (freight prepaid). Return shipping charges will be paid by Multi-Tech Systems (with North America).

Include the following with your modem:

- A description of the problem.
- Return billing and return shipping addresses.
- Contact name and phone number.
- Check or purchase order number for payment if the modem is out of warranty. (The standard repair charge for this modem is \$95. This price is valid at the time of this publication, but could change in the future. Check with your technical support specialist.)
- If possible, note the name of the technical support specialist with whom you spoke.

If you need to inquire about the status of the returned product, be prepared to provide the *serial number* of the product sent (see "Recording Modem Information").

Send modems to the following address:

**Multi-Tech Systems, Inc.**  
**2205 Woodale Drive**  
**Mounds View, MN 55112**  
**Attn.: Service or Repairs**

## About the Multi-Tech BBS

Multi-Tech Systems maintains a bulletin board system (BBS) for its customers. The information available via the BBS includes new product information, product upgrade data, problem-solving tips, and a message service you can use to request additional information. The phone number for the Multi-Tech BBS is (612) 785-3702 or (800) 392-2432 (USA and Canada).

The BBS can be accessed by any asynchronous modem operating at speeds of 1200 bps to 33,600 bps at a setting of 8 bits word length, no parity, and 1 stop bit (8-N-1).

## How to Use the Multi-Tech BBS

To use Multi-Tech's BBS, perform the following steps.

1. Set your communications program to 8-N-1, and to emulate ANSI (with MultiExpress™ software, press ALT+Z and choose "ANSI").
2. Dial our BBS at 1-800-392-2432 (USA and Canada) or 612-785-3702 (international).
3. At the prompts, type your first name, last name, and password; then press RETURN. If you are a first-time caller, after you press RETURN, the BBS will ask if your name is spelled correctly. If you answer yes, our questionnaire will be displayed. You can use our BBS on your first call.
4. There are four BBS areas: the Main Menu, the Files Menu, Bulletins (from the Main Menu), and the Message Menu. All bulletins are menu-driven. To read the bulletins, enter the number of the bulletin you wish to read.

5. Files Menu: From the Main Menu, type **F** to display the Files Menu. If you want a list of directories, type **L** (list directory) and then type **L** again for a list of all directories. If you do not type the second L, you will list all of the files on the BBS. At the list of directories, select the number of the directory required. A list of files and a description for each of the files will be displayed. Select a file that you would like to download. If you already know the file name, type **D** at the Files Menu to download the selected file(s). Type **V** to view a text file.
6. At the Message Menu, you can leave a message to the sysop (you cannot read messages at this point). The BBS will tell you if you have a personal message (mail). At the prompt *Would you like to read it now?*, type **R** for "read now". You must read your message(s) when you first access the BBS.

## About CompuServe/Internet

In addition to the BBS, Multi-Tech provides support through CompuServe's Modem Vendor Forum (GO MODEMVEN) under GO MULTITECH. You can download manuals, Help files, drivers, ARA and Microsoft Mail scripts, and product descriptions from Multi-Tech's forum library. Please refer to your CompuServe documentation for special operating procedures.

Multi-Tech is a commercial user on the Internet, and we retrieve messages from our customers on a periodic basis. If you prefer to receive technical support via the Internet, you can **contact Tech Support via e-mail**.

Multi-Tech also has a home page on the World Wide Web. The address is: <http://www.multitech.com>.

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## About the Multi-Tech Fax-Back System

Multi-Tech's fax-back system provides 24-hour access to sales/marketing and technical literature. Dial (612) 717-5888, follow the voice prompts, and enter the document number for either the "Sales and Marketing" catalog or the "Technical Support" catalog of available documents. For convenience, have your fax number handy:\_\_\_\_\_.

From the Sales and Marketing catalog, you can request to have newsletters, white papers, press releases, brochures, and other marketing literature faxed to you. From the Technical Support catalog, you may request basic modem operation information and troubleshooting guides. With either catalog, simply enter the applicable FB Doc. # of the literature you wish to receive from the left column of the catalog.



## Appendix A - Technical Specifications

### Data:

- V.34bis 33.6K bps, V.34 28.8K bps, V.32bis 14.4K bps
- AT Command Set Compatible
- V.42bis & MNP 5 Data Compression
- V.42 & MNP 2-4 Error Correction
- Enhanced Throughput Cellular (ETC) protocol for mobile cellular connection

### Fax:

- G3, V.17 14.4K bps, V.29 9.6K bps, V.27ter 2.4K bps
- Fax Service Class 1 and Class 2 Compliant

### LAN:

- IEEE 802.3 10BaseT (MT3410ZLX),
- 10Base2 (MT3410ZLX-T/2)
- 10Mbps speed
- Internal buffer memory (no system memory used)
- NE2000 compatible
- ODI client, Packet driver, and NDIS 2.x, 3.x supported

### Operating Systems:

- Novell Netware 3.x, 4.x
- Microsoft LAN Manager
- Packet Driver
- Microsoft Windows 95
- Microsoft Windows 3.1
- Microsoft Windows NT 3.51, NT4.0
- Microsoft Windows for Workgroups 3.11

**Physical:**

- PCMCIA Type II
- 3.37 in. x 2.128 in. x 0.197 in.  
(85.6mm x 54mm x 5mm)
- Weight: 1.225 oz. (35 g)
- Power: +5V  $\pm$ 5%, @220mA  
Sleep Mode: 400mW (80 mA)  
Operating Mode: 750mW (150 mA)
- One 15-pin connector with RJ-11 and RJ-45  
plugs (MT3410ZLX)
- One 15-pin connector with RJ-11 and BNC-T  
receptacles (MT3410ZLX-T/2)

## Appendix B - AT Commands, S-Registers & Result Codes

### Introduction

This chapter describes how to use MT3410ZLX AT commands, S-Registers and Result Codes.

### How To Use AT Commands

Usually, your fax and data comm software controls the modem for you. However, you may also want to use the AT commands. These commands give you complete control over your modem. You need to be careful when using these commands, because they can cause your software to lose its ability to control the modem. If you do find that an AT command has caused a problem, then turn the computer off and then back on. That will reset most AT commands to the factory default settings. You can also type **AT&F&WZ** to go back to the factory default setting.

To use an AT command, you must first:

1. Run your communication software.
2. Configure the software for the appropriate COM port and IRQ settings, if necessary.
3. Enter Terminal mode (also "Command mode", "Local mode", or "Direct mode"). This is the mode in which most data comm software packages start up. You can then type the desired AT command, then press the **Enter** key.

For example, type:

**ATH0<Enter>** to hang up the modem connection,  
or

**AT&K3<Enter>** to enable bi-directional CTS/RTS  
hardware flow control.

Most of the AT commands can be entered in "strings" (i.e., on the same command line) without spaces between the individual commands. For example:

**AT&K3H0<Enter>**

As shown above, it is not necessary to put spaces between the commands. So, there are no spaces between **AT**, **&K3**, and **H0**.

The modem usually returns a response (or "Result Code") at the next line if it understands the command. The response is usually *OK* or *ERROR* unless the AT command provides other (extended) messages.

## Basic AT Commands

<u>Command</u>	<u>Options Function &amp; Description</u>
----------------	---

A/	Re-execute the last command string
<any key>	Terminate the current connection attempt when entered in handshaking state

All the following commands require an "AT" prefix

A	Go off-hook and attempt to establish a connection without waiting for a ring
Bn	Line modulation options
B0	Select ITU-T V.22 mode for 1200 bps connection and V.21mode for 300 bps

<b>Command</b>	<b>Options Function &amp; Description</b>
B1 *	Select Bell 212A for 1200 bps connection and Bell 103 for 300 bps
B2	Select V.23 1200 bps for receiving, 75 bps for transmitting in originate mode; 75 bps for receiving and 1200 bps for transmitting in answer mode
B3	Select V.23 75 bps for receiving, 1200 bps for transmitting in originate mode; 1200 bps for receiving and 75 bps for transmitting in answer mode
Dn	Dial command, beginning the dialing sequence. The string "n" (telephone number and modifiers) listed as follows is entered after the "D" command
P	Pulse dial. Only digits 0 to 9 can be dialed
R	Reverse dial. Originate call in answer mode (go on-line in answer mode)
Sn	Dial the phone number stored in NVRAM at location "n" (n=0, 1, 2, 3)
T	DTMF tone dial. Any digit 0 to 9, *, #, A, B, C... may be dialed as a tone
W	Wait for second dial tone. The modem waits for the second dial tone before processing the dial string
,	Pause. Cause the modem to pause for a time before processing the dial string (designed by S8 register)
!	Flash hook (for call transfer). Cause the modem to go on-hook for 0.5 second then return off-hook
@	Wait for 5 seconds of silence after dialing number
;	Return to command state after dialing a number without disconnecting the call

\* Factory default setting

<u>Command</u>	<u>Options</u>	<u>Function &amp; Description</u>
En		AT command echo options
E0		Echo disabled
E1*		Echo enabled
Hn		Switch-hook control
H0		Modem goes on-hook
H1		Modem goes off-hook
Mn		Speaker control
M0		Speaker always off
M1 *		Speaker on until carrier present
M2		Speaker always on
M3		Speaker off during dialing and on until carrier present
Nn		Select negotiate handshake
N0		When originating or answering, handshake only at the communication rate specified by S37 register and "ATBn" and no fallback
N1 *		When originating or answering, start handshaking only at the communication standard specified by S37 register and "ATBn" During handshake, fallback to a lower speed may occur except in "AT\N1" mode
On		Go on-line
O0		Return modem to a previously established state
O1		Begin an equalizer retrain sequence, then return to on-line state
O3 to O14		Force modem to a new rate that is user defined. New rates are defined in S62 register
P		Enable pulse dialing
Qn		Result code display options
Q0 *		Result code enabled

\* Factory default setting

<b><u>Command</u></b>	<b><u>Options Function &amp; Description</u></b>
Q1	Result code disabled
T	Enable tone dialing
Vn	Result code form
V0	Display result code in numeric form (see also the result code options table)
V1 *	Display result code in verbose form
Wn	Select extended result codes
W0 *	CONNECT result code reports DTE speed (see also the "Result Code Options Table")
W1	CONNECT result code reports DTE speed; enable the CARRIER, COMPRESSION, and PROTOCOL extended result code
W2	CONNECT result code reports DCE speed
Xn	Select result codes/call progress options
X0	Display CONNECT or "1" for all speeds
X1	Display connect message according to "ATW" and "AT\V", blind dial, ignore busy tone
X2	Display connect message according to "ATW" and "AT\V", wait for dial tone, ignore busy tone
X3	Display connect message according to "ATW" and "AT\V", blind dial, check busy tone after dialing
X4 *	Display connect message according to "ATW" and "AT\V", wait for dial tone, check busy tone after dialing
Zn	Recall stored profile
Z0	Reset and recall user profile 0
Z1	Reset and recall user profile 1

\* Factory default setting

## AT& (Ampersand) Commands

<u>Command</u>	<u>Options Function &amp; Description</u>
&Bn	Auto-retrain
&B0	Hang up on a poor received signal
&B1 *	Retrain on a poor received signal. Hang up if condition persists longer than the threshold set in S7 register
&B2	Don't hang up; do not retrain (tolerate any line)
&Cn	Data carrier detect option
&C0	State of carrier from remote modem is ignored. RLSD (Receive Line Signal Detect) circuit is always on
&C1 *	State of carrier from remote modem is tracked. RLSD circuit reflects the state of carrier
&Dn	Data Terminal Ready (DTR) option.
&D0	DTR ignored
&D1	Go to command mode on on-to-off DTR transition
&D2 *	Hang up and go to command mode on on-to-off DTR transition. Auto-answer is disabled if DTR is low
&D3	Hang up and reset from user profile 0 on on-to-off DTR transition
&F	Recall factory default setting as active configuration
&Gn	Guard tone option
&G0 *	No guard tone
&G1	550 Hz guard tone
&G2	1800 Hz guard tone
&Jn	Dummy command for AutoSync compatibility
&J0	Send OK to DTE

\* Factory default setting



<b><u>Command</u></b>	<b><u>Options Function &amp; Description</u></b>
&J1	Send OK to DTE
&Kn	Set flow control
&K0	Disable flow control
&K3 *	Enable bi-directional hardware flow control (CTS/RTS)
&K4	Enable bi-directional software flow control (XON/XOFF)
&Mn	Sync, Async, or AutoSync mode selection
&M0 *	Async mode
&M4	Hayes AutoSync mode
&Pn	Dial Pulse make/break ratio
&P0 *	Make=39%, Break=61% for use in the United States, international version Make=33%, Break=67% for use in 10 pps, Japan version
&P1	Make=33%, Break=67% for use in other countries, international version Make=33%, Break=67% for use in 20 pps, Japan version
&Rn	CTS/RTS option (for non-CTS flow control mode and synchronous mode only)
&R0 *	CTS follows RTS
&R1	CTS always true
&Sn	Data Set Ready (DSR) option
&S0 *	DSR always on
&S1	DSR on during handshake and on-line, off in test mode or idle mode
&Tn	Self-test commands
&T0	Terminate test
&T1	Local analog loopback test
&T3	Local activated remote digital loopback (RDL) test

\* Factory default setting

<u>Command</u>	<u>Options Function &amp; Description</u>
&T4 *	Grant request from remote for RDL test
&T5	Deny request from remote for RDL test
&T6	Remote digital loopback test
&T7	Remote digital loopback with self-test
&T8	Local analog loopback with self-test
&Vn	View active configuration and stored profile
&V0	View active file, stored profile #0 and stored phone numbers
&V1	View active file, stored profile #1 and stored phone numbers
&Wn	Store active profile
&W0	Save active configuration as user profile #0
&W1	Save active configuration as user profile #1
&Yn	Select stored profile on power-up
&Y0	Recall user profile 0 on power-up
&Y1	Recall user profile 1 on power-up
&Zn=x	Store telephone number n=0 to 3 x=<string> see also the dial modifier in "ATDn" command. The maximum number of digits per string is 36.

\* Factory default setting

## AT% (Percent) Commands

<u>Command</u>	<u>Options Function &amp; Description</u>
%An	Set auto-reliable fallback character n=1-127  Specify the ASCII character that tells the modem to return (or fallback) from auto-reliable (MNP) mode to a normal connection on the answering modem
%Cn	Data compression option
%C0	No compression
%C1 *	MNP 5 compression
%Gn	Auto fallback/fall-forward options
%G0 *	Disabled
%G1	Enabled

## AT\ (Back Slash) Commands

<u>Command</u>	<u>Options Function &amp; Description</u>
\An	Block size for V.42
\A0	Max. 64 characters
\A1	Max. 128 characters
\A0	Max. 192 characters
\A0 *	Max. 256 characters
\Cn	Set auto-reliable buffer
\C0 *	Doesn't buffer data
\C1	Buffer data on answering mode for 4 seconds, until 200 characters have been buffered, and then switch to normal mode and the buffered characters are passed to the serial port. If a SYN character is detected, reliable mode is attempted
\C2	Doesn't buffer data on answering mode upon receipt of auto-reliable character and passes it to serial port

\* Factory default setting

<b><u>Command</u></b>	<b><u>Options Function &amp; Description</u></b>
\Gn	Set modem port flow control
\G0 *	Disable port flow control
\G1	Set port flow control to XON/XOFF
\Jn	Constant DTE speed option
\J0 *	DCE and DTE rates are independent
\J1	DTE rate adjusts to DCE connection rate after on-line
\K=n	Set break control  In on-line data state with V.42 protocol or normal mode, then break signal to DTE through RS-232  n=0 or 2 or 4  Enter on-line command state but do not send break to the remote modem  n=1  Empty the data buffers and send break to the remote modem immediately  n=3  Send break to the remote modem immediately  n=5  Send break to the remote modem in sequence with data in on-line data state with direct mode, then receive break signal at serial port  n=0 or 2 or 4  Immediately send break and enter on-line command state  n=1 or 3 or 5  Immediately send break through In on-line command state with V.42 protocol or normal mode, and the DTE issues a transmit break command

\* Factory default setting

<u>Command</u>	<u>Options Function &amp; Description</u>
	n=0 or 1 Empty the data buffers and send the break to the remote modem
	n=2 or 3 Send break to the remote modem immediately
	n=4 or 5 Send break to the remote modem in sequence with data. In on-line data state with normal mode, receive break signal from remote at modem port, send to serial port
	n=0 or 1 Empty the data buffers and send the break to the local DTE
	n=2 or 3 Send break to local DTE immediately
	n=4 or 5 Send break to the local DTE in sequence with data
\Nn	Modem protocol options
\N0	Normal mode. No protocol, but flow control is allowed
\N1	Direct mode. No protocol and no flow control is allowed
\N2	MNP reliable mode
\N3 *	LAPM, MNP or normal mode
\N4	LAPM or MNP mode
\Qn	DTE flow control options
\Q0	Disable flow control
\Q1	XON/XOFF software flow control
\Q2	CTS flow control to DTE
\Q3	RTS/CTS hardware flow control

\* Factory default setting

<u>Command</u>	<u>Options Function &amp; Description</u>
\Tn	Set inactive timer n=0 * Disable inactive timer n=1 - 90 Enable inactive timer. Length in minutes
\Vn	Protocol result codes
\V0 *	Disable protocol result code (e.g. CONNECT 9600)
\V1	Enable protocol result code (e.g. CONNECT 9600/LAP-M)
\Xn	XON/XOFF pass-through options
\X0 *	Process XON/XOFF per "AT\Gn" and "AT\Qn" option, if XON/XOFF flow control is enabled, do not pass XON/XOFF to the remote modem or local DTE
\X1	Process XON/XOFF per "AT\Gn" and "AT\Qn" option, always pass XON/XOFF to the remote modem or local DTE

\* Factory default setting

---

## AT- (Dash) Commands

<u>Command</u>	<u>Options</u>	<u>Function &amp; Description</u>
-Jn		Set V.42 detection phase
-J0		Disable V.42 detection phase
-J1 *		Enable V.42 detection phase
-V		Display firmware version number
"Hn		V.42bis compression control
"H0		Disable V.42bis
"H1		Enable V.42bis only when transmitting data
"H2		Enable V.42bis only when receiving data
"H3 *		Enable V.42bis for both transmitting and receiving directions

\* Factory default setting

## S-Registers (ATS<sub>n</sub>=x)

Certain modem parameters are stored in memory locations called S-Registers. Use the **S** command to read or alter the contents of S-Registers.

S0= 0-255

S0 sets the number of the rings required before the modem automatically answers a call. Set "S0=0" to disable auto-answer mode. The factory default setting is 0.

S1= 0-255

S1 counts the incoming rings and stores the value to this register. The value of this register is incremented with each ring. If no rings occur over an 8 seconds interval, this register is cleared. User can read but should not change this value. The factory default setting is 0.

S2= 0-255

S2 holds the decimal value of the ASCII character used as the escape character. The default value (043) corresponds to an ASCII character "+" (plus). A value of 128 to 255 disables the escape process, i.e., no escape character will be recognized 043.

S3= 0-127

S3 holds the decimal value of the Carriage Return <CR> character used as the command line and result code terminator (asynchronous operation only). The factory default is 013.



S4= 0-127

S4 holds the decimal value of the character recognized as a line feed (asynchronous operation only). The line feed control character is output after the carriage return control character, if verbose result codes are enabled. The factory default is 010.

S5= 0-127

S5 holds the decimal value of the character recognized as a backspace (asynchronous operation only). The modem will not recognize the backspace character if this register is set to a value greater than 32. The factory default is 008.

S6 = 0-255

S6 sets the length of time, in seconds, that the modem must wait (minimum 2 seconds even if the value is less than 2) after going off-hook before dialing the first digit of the telephone number. The factory default is 002.

S7=1-255 for international version. The factory default is 060.

S7=0-58 for Japan version. The factory default is 058.

Set the time, in seconds, that the modem must wait before hanging up because carrier is not detected.

S8= 0-255

S8 sets the time, in seconds, that the modem must pause when the “,” dial modifier is encountered in the dial string. The factory default is 002.

### S9=1-255

S9 sets the time, in tenths of a second, that the carrier must be present before the modem considers it valid and turns on RLSD. The factory default is 006.

### S10=1-255

S10 sets the length of time, in tenths of a second, that the modem waits before hanging up after a loss of carrier. The factory default is 014.

### S11=50-255

S11 sets the DTMF duration and inter digit delay in mini-seconds, in DTMF touch tone dialing. The factory default is 095.

### S12=0-255

S12 defines the maximum period, in 2-hundredths of a second, allowed between consecutive asynchronous escape character "+" (plus) for the escape sequence to be considered valid. The factory default is 050.

### S18=0-255

S18 sets the length of time, in seconds, that the modem conducts a test (commanded by "AT&Tn") before returning to command mode. If this register value is zero, the test automatically terminates, the test progress must be ended by issuing "AT&T0" or "ATH" commands. The factory default is 000.

### S25=0-225

S25 sets the length of time, in hundredths of a second, that the modem ignores DTR for before hanging up. The factory default setting is 005.

**S30=0-90**

S30 controls the Inactivity timer, which sets the length of time, in minutes, that the modem counts when there is no data flow in or out the DTE serial port. A connection is disengaged when the counter reaches the preset value. Setting to S30 =0 disables the inactivity timer. The factory default settings is 000.

S37=Desired DCE speed (line speed). The factory default settings is 000.

- |    |   |
|----|---|
| 0  | Attempt to connect at the last "AT" speed |
| 3  | Attempt to a 300 bps connection           |
| 5  | Attempt to a 1200 bps connection          |
| 6  | Attempt to a 2400 bps connection          |
| 7  | Attempt to a 4800 bps connection          |
| 8  | Attempt to a 7200 bps connection          |
| 9  | Attempt to a 9600 bps connection          |
| 10 | Attempt to a 12000 bps connection         |
| 11 | Attempt to a 14400 bps connection         |
| 12 | Attempt to a 16800 bps connection         |
| 13 | Attempt to a 19200 bps connection         |
| 14 | Attempt to a 21600 bps connection         |
| 15 | Attempt to a 24000 bps connection         |
| 16 | Attempt to a 26400 bps connection         |
| 17 | Attempt to a 28800 bps connection         |
| 18 | Attempt to a 33600 bps connection         |

**S46=0-255**

S46 Sets the length of time in 100 mSec, before the modem goes into standby mode. A value of 255 prevents standby mode. The factory default settings is 100.

S62 DTE rate status. The factory default is 016.

0	300 bps	16	57600 bps
1	600 bps	17	115200 bps
2	1200 bps		
3	2400 bps		
4	4800 bps		
5	9600 bps		
6	7200 bps		
7	12000 bps		
8	14400 bps		
9	16800 bps		
10	19200 bps		
11	21600 bps		
12	24000 bps		
13	26400 bps		
14	28800 bps		
15	38400 bps		

S64 = 9-20

Transmitting power level adjustment (Japan version only)

Range: -9 dBm to -20 dBm

Default: -15 dBm 015

S72 selects DTE speed during data transfer. The factory default settings is 000.

0	300 bps	17	57600 bps
1	600 bps	18	115200 bps
2	600 bps		
3	1200 bps		
4	2400 bps		
5	4800 bps		
6	9600 bps		
7	7200 bps		
8	12000 bps		
9	14400 bps		
10	16800 bps		
11	19200 bps		
12	21600 bps		
13	24000 bps		
14	26400 bps		
15	28800 bps		
16	38400 bps		

## Result Codes

In Command mode, the MT3410ZLX can send information and status responses, or Result Codes, to your computer. Result Codes are used by communications programs and can also appear on your monitor. The form of the Result Code information displayed can be defined using the **Qn**, **Vn**, **Wn** and **Xn** commands.

### Basic Result Codes

**ATW0: report DTE rate**

Example:           CONNECT 57600

**ATW2: report DCE rate**

Example:           CONNECT 28800

**ATV1: report connection protocol**

CONNECT DTE\_or\_DCE\_speed  
connection\_protocol

Example:           CONNECT 57600/NONE for  
                      normal mode connection

                      CONNECT 28800/MNP for MNP  
                      connection

                      CONNECT 115200/LAP-M for V.42  
                      LAPM connection

ATV0	ATV1	X0	X1	X2	X3	X4
0	OK	☐	☐	☐	☐	☐
1	CONNECT	☐	☐	☐	☐	☐
2	RING	☐	☐	☐	☐	☐
3	NO CARRIER	☐	☐	☐	☐	☐
4	ERROR	☐	☐	☐	☐	☐
5	CONNECT 1200		@	@	@	@
6	NO DIAL TONE	☐		☐		☐
7	BUSY	☐			☐	☐
8	NO ANSWER	☐	☐	☐	☐	☐
10	CONNECT 2400		@	@	@	@
11	CONNECT 4800		@	@	@	@
12	CONNECT 9600		@	@	@	@
13	CONNECT 14400		@	@	@	@
14	CONNECT 19200		@	@	@	@
15	CONNECT 16800		@	@	@	@
18	CONNECT 57600		%	%	%	%
24	CONNECT 7200		@	@	@	@
25	CONNECT 12000		@	@	@	@
26	CONNECT 1200/75		#	#	#	#
27	CONNECT 75/1200		#	#	#	#
28	CONNECT 38400		%	%	%	%
29	CONNECT 21600		@	@	@	@
30	CONNECT 24000		@	@	@	@
31	CONNECT 26400		@	@	@	@
32	CONNECT 28800		@	@	@	@
33	CONNECT 152000		%	%	%	%

## Extended Result Codes

### ATW1: report DCE & DTE speed and enable extended result code

Example:            CARRIER DCE\_speed

                      PROTOCOL: connection\_protocol  
                                  (MNP 2, 3, 4 or LAP-M)

                      COMPRESSION:  
                                  compression\_protocol (MNP 5 or  
                                  V.42bis)

                      CONNECT DTE\_speed (see  
                                  “Basic Result Code Options  
                                  Table”)

ATV0	ATV1	X0	X1	X2	X3	X4
40	CARRIER 300	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
42	CARRIER 75/1200	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
43	CARRIER 1200/75	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
46	CARRIER 1200	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
47	CARRIER 2400	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
48	CARRIER 4800	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
49	CARRIER 7200	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
50	CARRIER 9600	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
51	CARRIER 12000	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
52	CARRIER 14400	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
53	CARRIER 16800	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
54	CARRIER 19200	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
55	CARRIER 21600	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
56	CARRIER 24000	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
57	CARRIER 26400	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
58	CARRIER 28800	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
59	CARRIER 31200	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
60	CARRIER 33600	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
66	COMPRESSION: CLASS 5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
67	COMPRESSION: V.42bis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
69	COMPRESSION: NONE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
70	PROTOCOL: NONE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
77	PROTOCOL: LAP-M	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
80	PROTOCOL: MNP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
81	PROTOCOL: MNP 2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
82	PROTOCOL: MNP 3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
83	PROTOCOL: MNP 2,4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
84	PROTOCOL: MNP 3,4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



## Appendix C - Regulatory Agency Information

### FCC Regulatory Statements

#### Consumer Instructions

1. This equipment complies with part 68 of the Federal Communications Commission Rules. On the outside surface of this equipment is a label that contains, among other information, the FCC registration number and ringer equivalence number (REN). If requested, this information must be provided to the telephone company.
2. As indicated below, the suitable jack (Universal Service Order Code connecting arrangement) for this equipment is shown. If applicable, the facility interface codes (FIC) and service order codes (SOC) are shown.
3. An FCC-compliant telephone and modular plug is provided with this equipment. This equipment is designed to be connected to the telephone network or premises wiring using a compatible modular jack which is Part 68 compliant. See installation instructions for details.
4. The ringer equivalence number (REN) is used to determine the quantity of devices not ringing in response to an incoming call. In most, but not all areas, the sum of the REN's should not exceed five (5.0). To be certain of the number of devices that may be connected to the line, as determined by the total REN's, contact the telephone company to determine the maximum REN for the calling area.

5. If this equipment causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. But if advance notice is not practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

6. The telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the operation of the equipment. If this happens, the telephone company will provide advance notice in order for you to make necessary modifications in order to maintain uninterrupted service.

7. If trouble is experienced with this equipment (the model of which is indicated below) please contact Multi-Tech Systems, Inc. at the address shown below for details of how to have repairs made. If the equipment is causing harm to the network, the telephone company may request you to remove the equipment from the network until the problem is resolved.

8. No repairs are to be made by you. Repairs are to be made only by Multi-Tech Systems or its licensees. Unauthorized repairs void registration and warranty.

9. This equipment cannot be used on public coin service provided by the telephone company. Connection to Party Line Service is subject to state tariffs. (Contact the state public utility commission, public service commission or corporation commission for information.)

10. If so required, this equipment is hearing-aid compatible.

Manufacturer:	Multi-Tech Systems, Inc.
Trade Name:	MultiMobile
Model Number:	MT3410ZLX and MT3410ZLX-T/2
FCC Registration #:	503TAI-30556-PT-E
Ringer Equivalence:	0.6B
Modular Jack (USOC):	RJ11C or RJ11W (single line)
Service Center in USA:	Multi-Tech Systems, Inc. 2205 Woodale Drive Mounds View, MN 55112 Phone: (612) 785-3500 Fax: (612) 785-987

NOTE: This equipment has been tested and found to be comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential installation. This equipment generates, uses and can radiate radio frequency energy, and if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient or relocate the receiving antenna

Increase the separation between the equipment and receiver.

Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC rules.

Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference.
- (2) This device must accept any interference that may cause undesired operation.

Warning: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

## FCC Fax Update

The Telephone Consumer Protection Act of 1991 makes it unlawful for any person to use a computer or other electronic device to send any message via a telephone fax machine unless such message clearly contains in a margin at the top or bottom of each page or the first page of the transmission, the date and time it is sent and an identification of the business or other entity, or other individual sending the message and the telephone number of the sending machine or such business, other entity, or individual. See the cover page of your fax software manual for setup details.

## Canadian Limitations Notice

**Notice:** The ringer equivalence number (REN) assigned to each terminal device provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination of a interface may consist of any combination of devices subject only to the requirement that the sum of the ringer equivalence numbers of all the devices does not exceed 5.

**Notice:** The Industry Canada label identifies certificated equipment. This certification means that the equipment meets certain telecommunications network protective, operational and safety requirements. The Industry Canada does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be made by an authorized Canadian maintenance facility designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

**Caution:** Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.

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